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ABSTRACT

Presented is the 1976 annual report of a project to prepare profoundly and severely retarded adults for sheltered employment, thus qualifying them for low-level group home placement. The history of the project is traced and program goals (such as refinement of toileting, dressing, and eating skills) are reported in chapter I. In chapter II, the 26 profoundly retarded clients served are described in terms of sex, IQ, institutional history, parent contact, and use of medication. Discussed in chapter III is the use of the Vocational Behaviors Observation Form in developing effective individual training strategies. In chapter IV on the teaching of benchwork tasks, clients' acquisition of tasks is correlated with demographic variables. Outlined in the final chapter are seven goals and activities (such as development of a training manual) planned for 1977. Among the charts and tables provided are the layout of the training college and demographic characteristics of the clients. (SBH)

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COTTAGE TRAINING WORKSHOP

at

Arlington Developmental Center

of the

Tennessee Department of Mental Health and Mental Retardation

This project is funded in part by the

U.S. Department of Health, Education and Welfare

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I. PROJECT TO DATE

In early 1975 a grant was developed to provide a normalized and habilitative environment for profoundly and severely retarded adults of the Intensive Training Division at Arlington Developmental Center through prevocational training. The project was conceived by Jacquelyn Edwards, Director, Intensive Training Division, and Mona Reeves. Their overall goal for the project was to prepare the residents for sheltered employment, thus giving them the opportunity to compete for low-level group home placement. Among the program goals for the residents were the refinement of toileting, dressing, communication, and eating skills, development of perceptual skills and manual dexterity, development of an awareness of time and schedules, promotion of community awareness and appropriate social behaviors through off-station trips, development of a concept of money, and establishment of appropriate coeducational work behaviors. The principal training strategy would be prevocational training stressing both skill development and establishment of appropriate social-vocational behaviors, including neatness, increased attention span, direction-following, and independent mobility. The staff was planned to include a Director, Teacher, and two Developmental Technicians.

Tentative approval was given to this projection on June 24, 1975 by Stephen Cornett, Director, U.S. Office of Rehabilitation Services and on June 30, State approval was given to the project by Stephen Norris, Grant Review Coordinator, Tennessee Office of Rehabilitation Services. On July 16, Wayne Bland, Arlington Developmental Center, corresponded with Stephen Cornett, responding to questions of program design and structure for complying with federal conditions for approval. These included discussion of the Interdisciplinary Unit Team, the target population and numbers of residents to be served, socialization of the residents to community standards, and consultative

services. A letter of final approval was received from Stephen Cornett on August 11.

The project program began with a two-day consultation on September 4 & 5 with David Pomerantz, a reserach assistant of Dr. Marc Gold, Children's Research Center, University of Illinois. Among those attending this workshop were Jackie Edwards, Mona Reeves, Dan Edwards, Les Drexter, Wallace Flint, and Wayne Bland. Training techniques and program design were discussed, and some tentative structures and format for the Cottage Training Workshop were developed. Dan Edwards, M.Ed., was hired as the Project Director on September 10 and Les Drexter, B.S., on September 18 as the Project Teacher.

A site visit was made on September 18 by Martha Carrick, Regional Representtative, and Al Weimer, Grants Management officer of the Office of Rehabilitation Services; Joe Sheppard, Regional Representative, of the Office of Developmental Disabilities, Ed Reece, Assitant Commissioner of Education, and Paul Hicks, Regional Director, of the Tennessee Division of Vocational Rehabilitation; and Melba Davis of the Tennessee Department of Developmental Disabilities. The target population, overall program goals, and instructional technologies were discussed.

On October 1, housing for project was made available in the school area and two developmental technicians were assigned to the project. Preliminary observations of the potential clients to be served by this project were made, and the room was prepared for training. The staff underwent training in instructional techniques, interactional strategies, and procedures for providing reinforcement. On October 13, the first residents were admitted to the program for training, and on October 31, the first off-station trip into the community was made. All Of the training from the first day through the end of December was one-to-one, and residents attended classes for a maximum of sixty minutes. By the end of December 21 residents were receiving some prevocational training; this number already exceeding the first year goal for clients to be served.

At the beginning of January, a 90-minute training period was introduced to the program. During this period the resident received training in both the intensive one-to-one situation and in the group setting. In mid-January a Memphis State University graduate student, Lydia Martin, began an Independent Study to assist in the formulation and implementation of individualized token economies. A prelimanary step to this was the observation of social-vocational behaviors. She assisted the Director in the designing of an observation instrument and in the observation of the residents with this tool. She also assisted in the piloting of an economy in Mid-May for two of the residents. (This economy is discontinued and is now undergoing revision). Mona Reeves and Jean Hudson, a Memphis State University undergraduate student, also observed the residents with the V.B.O.F. and provided feedback on the weaknesses and strengths of it. The Vocational Behavior Ovservation Form is discussed in detail in Chapter II.

In January the workshop received a task from Sheltered Occupational Shop, Inc., Memphis, Tennessee, for evaluation and use as a quasi-subcontract job. The task, folding filter paners, was expected to be a long-term one, but unfortunately did not remain with the Shop. However, before its loss, one resident was able to produce filters at a faster rate than the industrial norm (51 per hour vs. 38 per hour), and three others were completing their training for this task. We will continue to pursue S.O.S. as a source of high-validity training tasks.

At the end of the third quarter 26 residents were being actively served. This exceeds the second year goal in population to be served. Most of the residents were receiving daily training, but some were receiving twice weekly or once weekly training depending on the individual situation.

In mid-April a "Half-Day Program" for 13 residents was begun. The residents attended training for 3 hours each day, including a half-hour break. The break was designed to provide reinforcement for attending classes and performing

appropriately and to train perceptual skills and gross motor coordination through social-recreational activities such as swinging, playing catch and taking hikes. The residents in the Half-Day Program receive one-to-one training plus a great deal of training in the group setting. This new vocational environment requires an ability to work without disrupting others, to work with minimalsupervision, and to work in the presence of others. Other residents will continue to receive one-to-one training and will be exposed to the group setting for shorter periods of time (15-30 minutes) after receiving the one-to-one training.

On May 3, a token economy was briefly piloted for two residents to determine its feasibility and impact. The trial was maintained for a week. A revised economy based on this initial probe and the results of vocational behavior observations will be introduced in the new year.

The logo found on the cover of this report was designed for and given to the Cottage Training Workshop by Catherine Wisener, Assistant Professor of Art, Memphis State University in April. She donated her time and effort in the creation of this logo. This identifier will soon be found on the doors of both the workshop and the workshop office.

In May one of the Developmental Technicians left on maternity leave, and the other had to enter the hospital for surgery. The latter returned in early June and the former will return July 15. In the meanwhile another aide position was assigned to the workshop and several aides were evaluated during May and June. An aide was selected and will begin July 1, bringing the staff total to five persons.

Throughout the first year new tasks were being developed and the social-vocational behaviors of the residents were much improved. In the first year we progressed from 30 minute training sessions and teaching discrimination among bolts, washers, nuts and screws to a Half-Day Program with a variety of

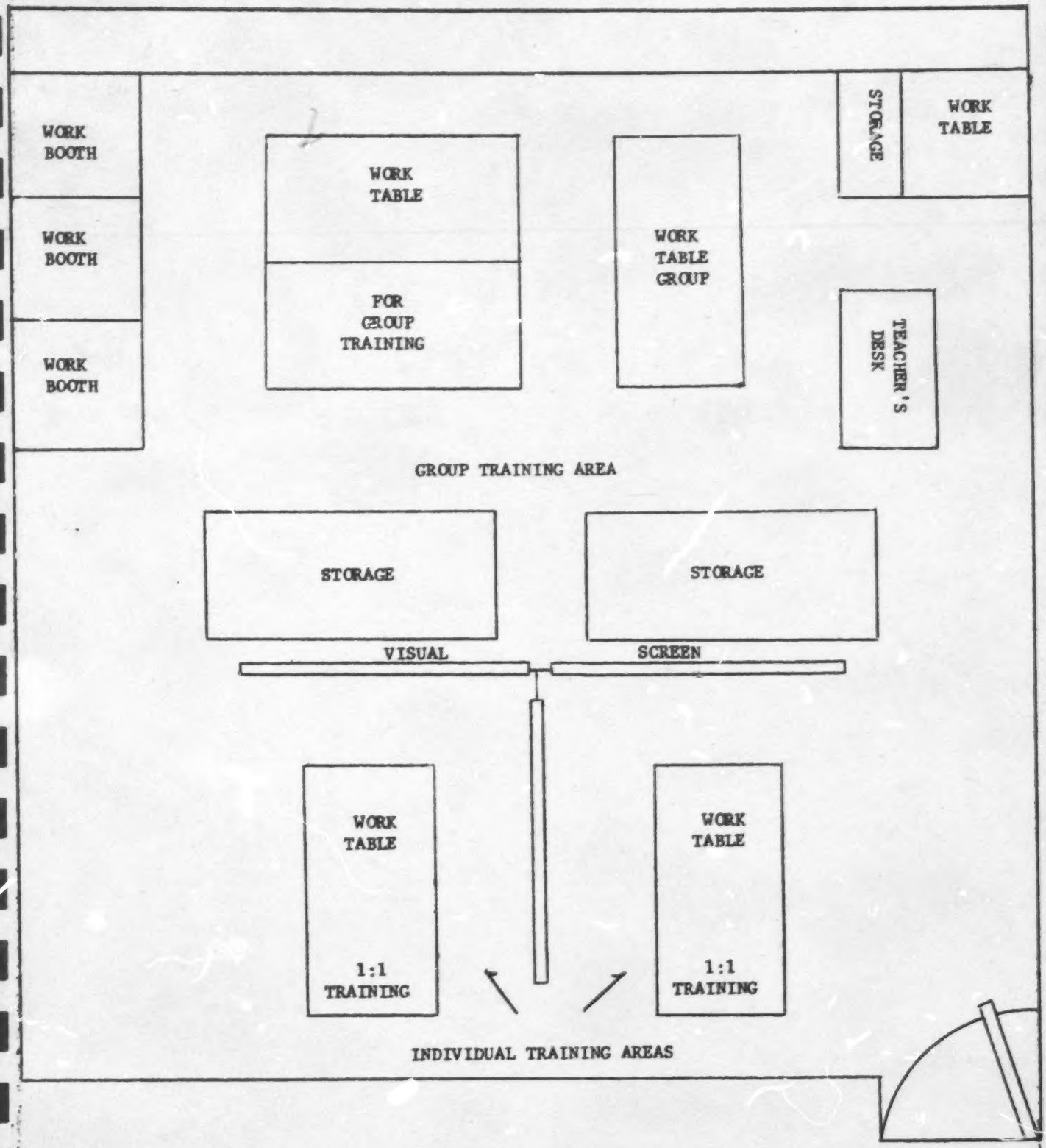
tasks. Among these tasks are 1) sorting bolts, washers, nuts, and screws, 2) sorting among various sized bolts, 3) packaging screws (a simulated S.O.S. subcontract), 4) taping screws (another simulated subcontract), 5) 3-piece needle valve assembly, 6) disassembly of same, 7) 5-piece gas valve assembly, and 8) 12-piece wood clamp assembly. Another task, stringing nuts and washers, is used as a reinforcer task and as a tool to promote independent working behaviors.

Staff training was continuous throughout the year. Visitations were made to Hardemann County Developmental Services, Bolivar, Tennessee (February 13) to observe an adult activity center; Central Wisconsin Colony and Training Center for The Mentally Retarded, Madison, Wisconsin (A pril 2); and Project More, Peabody College for Teachers, Nashville, Tennessee. In addition there have been in-service trainings and monthly evaluations to discuss needed modifications in individual training methods.

At the end of the first year, 29 people have been served by the project. There are 23 residents being actively served, 3 being evaluated, and 3 under suspension. The 3 that are suspended will be reevaluated through a 30-day trail before their next Interdisciplinary Unit Team Staffing. Their suspension will be subject to annual reevaluation ad infinitum; this is in keeping with the project's zero-rejection philosophy. The addition of another aide to the staff will allow expansion of the number of residents being served and the initiation of a full-day Program. There are now seven residents awaiting evaluation and several more will be referred within the next year. It is expected that 35 residents will be concurrently actively served by the end of the second year.

The following illustration represents the layout of the Cottage Training Workshop. The larger upper area is for group training and production activities; the two lower areas for one-to-one training.

FIGURE 1
LAYOUT OF COTTAGE TRAINING WORKSHOP



II. THE POPULATION SERVED

This chapter will describe the population currently served by the Cottage Training Workshop. Data that has been extracted from institutional records will be presented. The Workshop staff has developed a more personal knowledge of these profoundly retarded clients over months of relating and interacting with them. Although this information can not be tabulated and analyzed statistically, an attempt has been made to present it through anecdotal case histories of selected clients at the end of the chapter.

The 26 clients are equally divided by sex. Thirteen are male and thirteen female. Females in the project tend to score higher on intelligence and socialization tests than the males. Mental age of females is seven months above males on the average in mental age and three months above in social age. Males were institutionalized younger than the females and had lived institutions about four more years on the average than females. Males received only about two thirds as many visits and other parent contacts as the females.

Table I. Demographic characteristics of the 26 clients in the program.

	Mean	Median	Minimum	Maximum
Chronological Age	21.3	20.0	15.0	38.0
Mental Age	2.4	1.9	1.6	4.5
Social Age	3.0	2.9	1.3	4.8
Age Institutionalized	12.3	13.2	1.0	19.0
Years Institutionalized	9.3	7.5	2.0	20.0

Intelligence quotients may be calculated from mental ages presented in Table I. The basic formula is MA/CA X 100 = I.Q. where CA. is equal to or less that 16 years. Above the chronological age of 16 the division remains constant at 16 years. Since all of our clients except one is above sixteen and the one is fifteen, we converted mental age in months to I.Q. by dividing 16 into each mental age statistic. This procedure yielded an overall I.Q. of 14 for the group. Median I.Q. is 12. Only one client scores above the profoundly retarded range as defined by the 1973 definition mental retardation provided by the American Association on Mental Deficiency.

Only one client was institutionalized in infancy. Ten were committed during the traditional elementary school ages. The majority were institutionalized in adolescence. Generally, this group may be described as chronically institutionalized, profoundly retarded young adults. Only one client is above 29 years old.

Figure II. Frequency distribution of mental age in months.

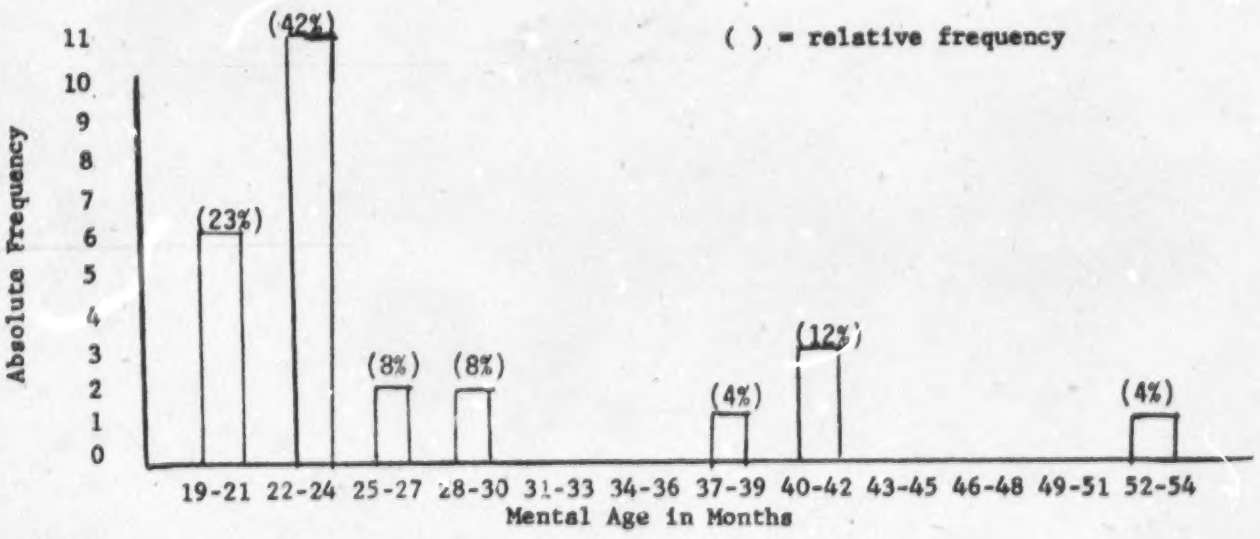
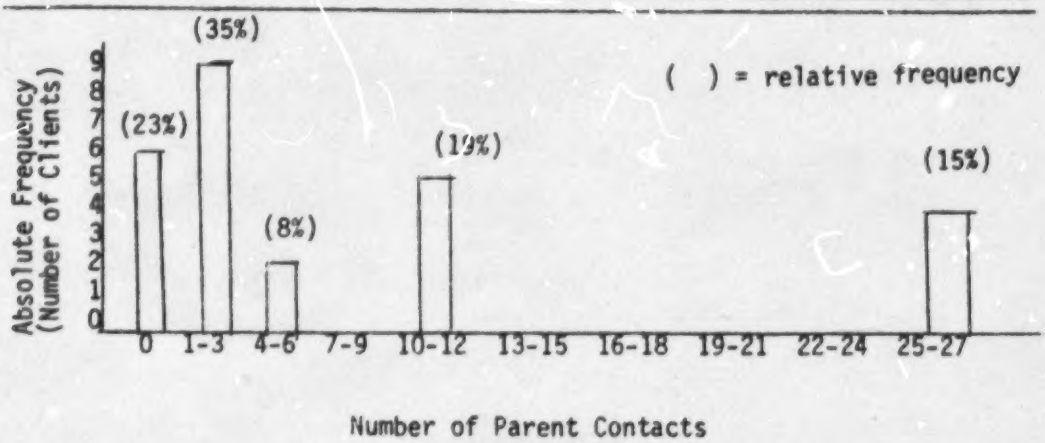


Figure II. graphically protrays the distributions of intelligence scores. The strong positive skew of scores penalizes statistical measures of the degree of association between mental age and scores for other variables.

Figure III. Frequency distribution of contacts with parents per year.



Only 42% of the clients saw their parents more than three times a year. Almost one out of four did not see their parents at all. A small group (15%) saw their parents much more often than the others. This group was in contact with parents about every other week. We hope the gains made by our clients will provide parents with incentive to visit or take the clients home more frequently.

Table II. Medication taken by the 26 clients in the program.

	Absolute frequency	Relative frequency
No medication	5	19%
Seizure	9	35%
Tranquilizer	6	23%
Gastro-Intestinal	7	27%
Other	3	12%
Seizure and Gastro-Intestinal	1	4%
Tranquilizer and Gastro-Intestinal	3	12%

Four out of five clients are on medication. The resulting drowsiness and general lethargy of some clients has apparently been a handicap to them. The institution is committed to an interdisciplinary team approach to client programming. It is believed that institutional physicians will agree to titrate medication for many of these clients as the behavioral approaches of the project take effect. Younger and more intelligent clients were more likely to have psychotrophic drug prescriptions than other project clients.

III. OBSERVATION OF VOCATIONAL BEHAVIOR

It has been possible to document the acquisition and maintenance of various prevocational skills (through training in benchwork tasks), but appropriate social-vocational behaviors are difficult to accurately document. The Vocational Behaviors Observation Form (see Figure V) and the accompanying list of Definitions (see Figure VI.) were designed to fulfill the need for accurate and consistent observations of social-vocational behavior in order to facilitate the development of effective individual training strategies. Briefly, this instrument aids assesment of 1) the relative on-task time for each trainee, 2) the inappropriate behaviors specific to each trainee, and 3) the effect of trainer responses to client behaviors. Assuming relative on-task time can be a rough indicator of the motivation to work, the need for a motivating reinforcement schedule (a token economy) can be demonstrated or contraindicated. The data also serves in the baseline and retrospective analysis of behavior.

A discussion of the use of this instrument can be found in the third quarterly evaluation, but a summary appears below. The observer using this form observes the clients on a 30-second schedule, cycling from client to client. First, Client A,is observed,then B, then C, then D, and then the observer returns to Client A to begin the next cycle of observations. At the beginning of the 30-second period, the client's behavior (as defined by the form) is noted. The observer then notes the trainer's response to that behavior, also as defined by the form. Finally, the observer makes a dichotonmous decision regarding the result of the interaction or noninteraction by noting whether the behavior perseveres or ceases. The interaction is symbolically recorded in the proper box with a "+" or "0" to note the observed interaction. A similar recording is made for each succeeding client. When all have been observed one time,

Figure IV

VOCATIONAL BEHAVIOR
OBSERVATION SHEET

Resident: Task:

Date: Time:

Observer: Group: 1 2

Observation: 1 2 3 4 5 6 7 8 9 10

X = behavior stops

O = behavior continues

= unknown

	IGNORING	SUBSTITUTION	POSITIVE VERBAL	POSITIVE PHYSICAL	POSITIVE BOTH	AVERSIVE VERBAL	AVERSIVE PHYSICAL	AVERSIVE BOTH	ISOLATION	NOT OBSERVED	UNKNOWN
1. ON TASK											
2. OFF TASK											
NOT PERFORMING											
STARING											
TALKING											
GARBAGE PHYSICAL											
GARBAGE VERBAL											
IN SEAT, DISTRACTING											
OUT OF SEAT											

FIGURE V

BEHAVIORAL OBSERVATION SHEET 13

Interactions

IGNORING - Intentionally refraining from interaction

SUBSTITUTION - Instruction to perform some task (in lieu of inappropriate behavior- e.g. "sort the bolts" as an action-oriented command to substitute for inappropriate talking)

POSITIVE VERBAL - Praise, encouragement

POSITIVE PHYSICAL - Reassurance (e.g. touching, pat on the back, etc.)

POSITIVE BOTH - Both positive interactions simultaneously

AVERSIVE VERBAL - Criticism, reprimand, instruction to stop, etc.

Aversive Physical - Gesturing to stop or prevent some action, punitive standing, restraint, etc.

AVERSIVE BOTH - Both aversive interactions simultaneously

ISOLATION - Removing person from group situation to an individual working unit

NOT OBSERVED - As stated

UNKNOWN - Unable to decide type of interaction

Behaviors

ON TASK - Working as instructed

OFF TASK - Not working

NOT PERFORMING - Ceased activity at work station

STARING - Looking, watching, staring not related to work activity

TALKING - Attempting conversation or communication not appropriate to work (legitimate inquiry to task at hand should be considered "on-task")

GARBAGE PHYSICAL - Finger posturing, meaningless manipulation of objects, perserverative physical behaviors. Any off-task non-work physical behaviors.

GARBAGE VERBAL - Laughing, whining, humming, babbling, or jargon. If person is working in conjunction with this behavior, he/she should be considered "on-task".

IN SEAT, DISTRACTING - At work station distracting others. Includes verbal and/or physical behaviors.

OUT OF SEAT - Not at work station. Includes interruption to go to bathroom, running away, moving from work area to disrupt activities of others.

the cycle is repeated until 10 observations have been made.

The results of the observations made over a four-week period in March and April have tended to bear out the preliminary findings stated in the previous quarterly report. The data presented is based on the observation of 17 clients, yielding 40 bits for each client or 680 bits for the group. The raw data is presented in Table III.

TABLE III. VOCATIONAL BEHAVIOR OBSERVATIONS OF 17 CLIENTS OVER A 4-WEEK PERIOD.

	IGNORING	SUBSTITUTION	POSITIVE VERBAL	POSITIVE PHYSICAL	POSITIVE BOTH	AVERSIVE VERBAL	AVERSIVE PHYSICAL	AVERSIVE BOTH	ISOLATION	NOT OBSERVED	UNKNOWN	SUBTOTALS	TOTAL
1) ON-TASK/													
continues	292	73	41	19	6	3	1	2		55		492	
stops	1												493
2) OFF-TASK /													
continues	12								7	8		27	
stops												1	28
a) NOT PERFORMING/													
continues	21	1						1		2		25	
stops		2	1		1	1		4		1		10	35
b) STARING/													
continues	14	2	1			1			3	6		27	
stops	3	1	1	1	4	3	1	3		2		21	48
c) TALKING/													
continues		1					1			2		4	
stops		1				1						2	6
d) GARBAGE PHYSICAL/													
continues	22	2								4		28	
stops	3	3				1	2	5				14	42
e) GARBAGE VERBAL/													
continues	3	3				2				1		9	
stops	4					3	2					9	18
f) IN SEAT, DISTRACTING/													
continues												0	
stops							1					1	1
g) OUT OF SEAT/													
continues										2	6	8	
stops							1					1	9
TOTAL	365	89	44	20	11	15	9	15	10	84	6	680	

A notable item from this table is the low frequency of distracting or disrupting behaviors. Most of the off-task behavior appears to be "introverted" or environmentally nonimpinging. This apparently narcissistic behavior is largely comprised of simply not performing, staring, and garbage physical (perseverative and self-stimulating behaviors like finger posturing, hand waving, etc). Although these constitute less than one-fifth of the total observed behaviors, they represent two-thirds of the off-task behaviors. None of these behaviors are operationally considered to be disruptive, but tend to be personal and perseverative in nature, and in this way become serious detriments to superior functioning in a work environment. This will be more thoroughly discussed below.

The next table (Table IV) clarifies the above data. All Off-task behaviors have been subsumed under the general rubric, "OFF-TASK." "NO RESPONSE" incoporates "IGNORING," "ISOLATION," "NOT OBSERVED," and "UNKNOW." "ISOLATION" and "UNKNOWN" were, operationally, no-response situations. (ISOLATION was a training environment which was devoid of social contact, rather than an interactional context. Although a question of intentionality might make it appear to be an aversive response, the client was observed after having entered the environment. Thus, the observation was essentially an enforced no-response setting.) "POSITIVE RESPONSE" incorporated "POSITIVE VERBAL", "PHYSICAL", and "BOTH". "AVERSIVE RESPONSE" incorporates "AVERSIVE VERBAL", "PHYSICAL", and "BOTH". "CORRECTION RESPONSE" is a more accurate description of "SUBSTITUTION."

An impressive item found in this table is the relative amount of time spent on-task. Nearly 75% of the time the group spends working on their assigned tasks: This undoubtely compares favorably with on-task performances by "normal: workers in a variety of work environments. Also revealed is the frequency of supervisory interactions between clients and staff-30%. This should be regarded as a high frequency of supervisory interaction. It is en-

Table IV. SUMMARY OF VOCATIONAL BEHAVIOR OBSERVATIONS

	No Response	Positive Response	Aversive Response	Correction Response	Total
ON TASK/continues	347(51)	66(10)	6(1)	73(11)	493 (73)
/stops	1(0)				
OFF TASK/continues	113(17)	1(0)	5(1)	9(1)	
/stops	16(2)	8(1)	28(4)	7(1)	-187(27)
Total	477(70)	75(11)	39(6)	89(13)	

*figures in parentheses indicate percentage of total

couraging to note the large number of noninteractions in the "On Task/ continues" line. Supervisory noninteraction is generally appropriate for a worker who is performing his/her job correctly.

Conversely, though, it is distressing to note the large number of non-interactions in the "OFF-TASK/continues" and ineffective as a training strategy. No other response obviates itself as preeminently effective, but aversive responses do seem to be the more successful. The ineffectiveness of a no-response strategy is not ipso facto inherent. With the occurence of inappropriate or attention-seeking behaviors, often the ignoring of them. Although nonresponse will not sustain itself as a sole training strategy, it is usually a major component of any training strategy dealing with those behaviors.

The data indicates, though, that these bizarre social behaviors are not the principal behavior problems encountered in this work setting. Most off-task behaviors are enviornmentally nonimpinging, introverted, and usually

perseverative. With these types of behaviors, nonresponse has little, if any, impact other than to not terminate it. Hence, more interaction with the clients is indicated when they are off-task to restimulate them to consciously interact with their work environment.

This solution to the problem of off-task functioning is not entirely stisfactory. In a group setting where the supervisor to client ratio is 1:6, the trainer will not necessarily be able to provide individual attention when dealing with this narcissistic lapse, because there is the danger of inadvertently drawing attention to the fact that the behavior can be successful in stimulating social interaction. Hence an introverted behavior can be transformed to attention-getting behavior by the apparently conscientious efforts of the trainer to discourage it. The solution might well foster a new problem with which it is not necessarily easier to deal.

The third reason for the need for a different strategy is that appropriate learning and social-vocational behaviors will be more enduring if the individual is more motivated to do that rather than something else. A trainer interrupting perseverative behavior does not necessarily promote the client's motivation to work, but perhaps rather motivates him/her to find some new way to appease his/her preference for introverted activities. The data has indicated both a need to deal with this behavior and to simultaneouly redirect their motivation to performing on-task behaviors.

A method to promote these on-task performances that is accessible to this project is the token economy. Assuming that all clients can be motivated by a carefully-structured monied economy, the data further indicates a component to the economy that could be effective. In addition to obvious benefits of remotivation, negative responses can be introduced and regulated to assist in the termination of inappropriate behaviors and the continuation of appro-

priate behaviors. These responses can be implemented through the withdrawal of money (tokens) as determined through individually-stated contingencies regarding rate of production, disrupting behaviors, inattention to work, etc. Thus, in addition to the motivation to earn tokens (which will be part of the learning process) there will be a motivation to not do that which results in the loss of tokens. Hence the most easily accessible alternative for the client is to perform in the work setting. This sketches a component of a token economy that is now being designed in accordance with the data. With the individual data in consideration, aspects of the economy will be individualized to address the specific needs of each client.

The Vocational Behavior Observation Form is undergoing revision and will reappear prior to the implementation of the token economy. The categories will approximate those found in the second table with the "OFF-TASK" behaviors roughly divided into"DISRUPTIVE" and "NONDISRUPTIVE" categories. The revision will permit establishing a second baseline and concurrent evaluations for immediate feedback on the individual relevance of the program and token economy.

This revision will be shared with Robert Johnson, Director of the Work Activity Program at Central Wisconsin Colony and Training Center for the Mentally Retarded Madison, Wisconsin. That program has had similar problems in social-vocational assessment. Any permutations that occur will be fedback to this project. Data comparisons will be possible and cross-fertilization in program content can be facilitated through awareness of each program's strenths as displayed through client behavior.

This tool will also be fielded at Sheltered Occupational Shop, Inc., of Memphis, Tennessee. It will provide that facility with an objective instrument for the evaluation of social-vocational behaviors. Since this facility will be one of placement facilities for clients in this project, the comparison of data will provide valuable information for assessing client readiness.

It is expected that the revised Vocational Behavior Observation Form will 1) help keep the token economy relevant to individual clients 2) provide comparative interfacility data, 3) provide comparative interindividual data, 4) identify individuals with enduring special problems and 5) serve as one of the indicators of program success in vocational preparation. It is expected that as individual and project needs become more evident and subsequent permutations occur, the power of this tool will increase, and it will be incorporated into a larger comprehensive evaluation tool.

IV. ACQUISITION AND PRODUCTION

The project activities have centered around the teaching of benchwork tasks of the nature found in community sheltered workshops and the sustained performance of these tasks in a group situation after they are learned to a suitable criterion. We believe that other types of tasks such as those found in the service occupations or agriculture should be explored with this population. Some training in non-benchwork tasks will begin during the next quarter.

Acquisition training has been accomplished in intensive one to one situations. A series of 15 tasks representing successively more complex operations have been used. These tasks were first broken down into small steps and training methods, performance standards, and record keeping procedures were rigidly defined.

Although a wide range of acquisition abilities have been encountered (indeed, one of the intriguing aspects of the project has been accounting for the wide range of acquisition abilities) all clients have been able to learn to perform at least some tasks and others have acquired the skills with surprising speed.

Acquisition records were kept for all trials by all clients from their entry into the project. Each task must be performed to the specified criterion for learning the task. The criterion is defined in terms of a specified number of errorless trials. Time is recorded for each client from the client's first attempts at performing a task until criterion is reached for that task. The total time required to reach criterion is then taken as one measure of the client's acquisition of that task. The number of trials required to reach criterion is the other measure of acquisition recorded.

Figure VI. Percent of the 26 clients in the project to reach criterion on each of the 13 acquisition tasks.

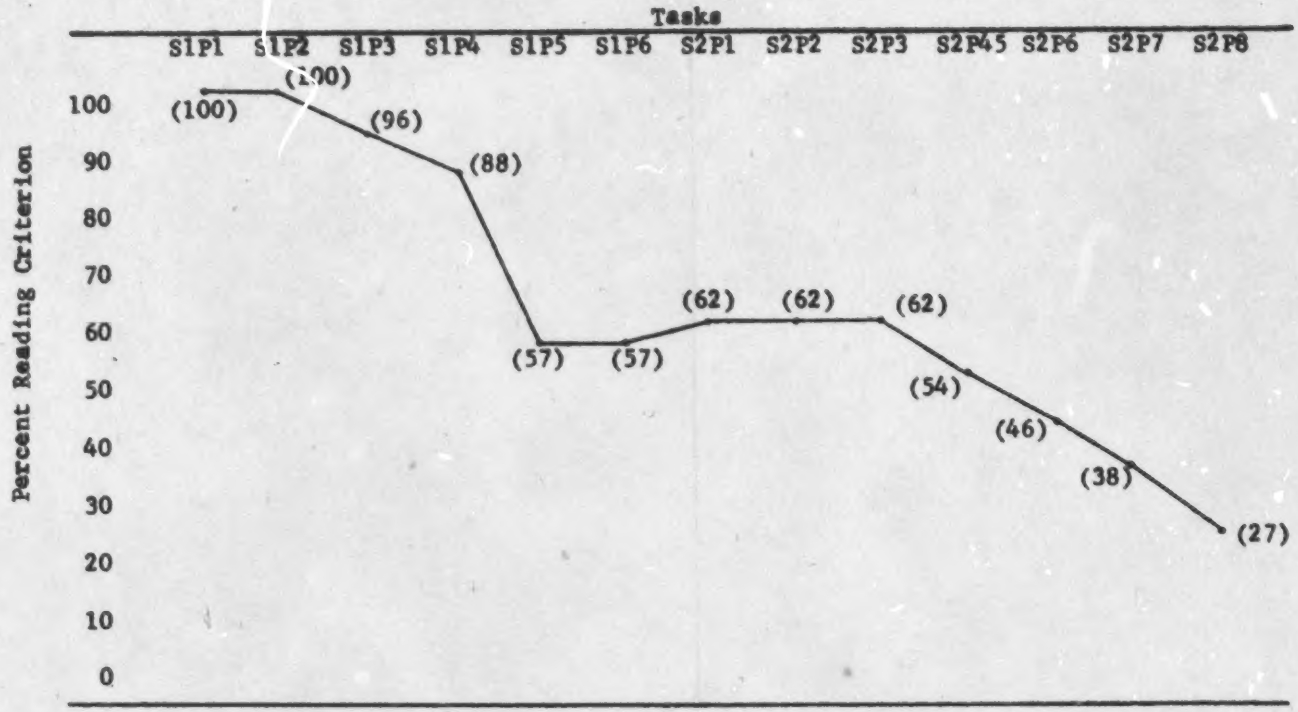


Table V. Distribution of acquisition scores showing time in minutes to criterion for all clients reaching criterion on each task not involving multiple sorting. (*indicates interval that median falls within)

Minutes to Criterion Score	Task S1P1	S1P2	S1P3	S1P4	S2P1	S2P2	S2P3	S2P45	S2P6	ALL NINE TASKS
	Frequency									
201-300				4						4
121-200	2		1	5	1					9
111-120		1				1		1		2
101-110	1	1		1				1		4
91-100		1	4							5
81- 90			1							1
71- 80	1	1		2*		1				5
61- 70	1	1	2	1		1				7
51- 60	2	2	1	1		1				7
41- 50	1	4	2	1	2			2		12
31- 40	3	3*	3*	1			1	1	1	15
21- 30	1*	3	4	1	2	2	1	2	2	18
11- 20	4	4	6	3	4*	3*	2	1*	3*	30
1- 10	8	5	1	3	6	8	12*	6	6	55
N	26	26	25	23	16	16	16	14	12	174

Table VI. Quantile distribution of acquisition scores for multiple-sorting tasks showing time in minutes to criterion.

Quantile		S1P5	S1P6	S2P7	S2P8
		Score			
Maximum	(P_{99})	1745	1301	1459	781
Third Quantile	(P_{75})	290	413	318	290
Median	(P_{50})	183	98	110	90
First Quantile	(P_{25})	50	63	35	40
Minimum	(P_1)	13	32	27	25
Number reading criterion		15	15	10	7

Table VII. Frequency distributions of acquisition scores showing number of cycles to criterion for each acquisition task except multiple sorting.

Score	Task									ALL NINE TASKS
	S1P1	S1P2	S1P3	S1P4	S2P1	S2P2	S2P3	S2P45	S2P6	
	Frequency									
40-42	1									1
37-39										
34-36										
31-33	1					1				2
28-30				3				1		4
25-27	1		1	1						3
22-24		1		1						2
19-21	1			2						3
16-18	1	2	1	1						5
13-15	1	3	1	4*						9
10-12	4	3	4		4	1		3		19
7- 9	5*	6*	7*	2	1	2			2	25
4- 6	4	6	6	6	2	3	1	4*	1	33
1- 3	7	5	5	3	9*	9*	15*	6	9*	68
N	26	26	25	23	16	16	16	14	12	174

*designates median score

Table VIII. Quantile distribution of acquisition scores for multiple sorting tasks showing number of cycles to criterion.

Quantile		Tasks			
		S1P5	S1P6	S2P7	S2P8
		Score			
Maximum	(P_{99})	99	70	39	26
Thrid Quantile	(P_{75})	27	5	17	6
Median	(P_{50})	5	3	8	3
First Quantile	(P_{25})	3	2	4	2
Minimum	(P_1)	3	2	3	2
N		15	15	10	7

The most striking feature of these distributions is the degree of variation. Records of the multiple sorting tasks were computed in terms of quantiles because of the extreme range of scores involved. This variation is illustrated by task S1P5. The client with the longest training period required 134 times as long as the client who learned the task in the least time. The range decreases with greater task complexity, probably due to the fact that slower clients would not as yet have reached these tasks.

Table IX. Pearson Product - Moment Correlation Coefficients of demographic variables with speed of learning for all acquisition tasks with at least 13 valid cases. Statistical probability that results are attributable to chance five or fewer times in 100 trials is indicated by asterik (*).

	TASKS									
Demographic Variables	S1P1	S1P2	S1P3	S1P4	S1P5	S1P6	S2P1	S2P2	S2P3	S2P4
Chronological Age	.42*	.51*	.55*	.36	.53*	.19	.36	.39	.03	.32
Mental Age	-.23	.01	-.11	-.35	-.38	-.29	-.29	-.17	.17	-.21
Social Age..	.17	.06	.29	-.01	.21	.21	-.12	.19	.29	.20
Age Institutionalized	.37	.44*	.36	.51*	.31	.10	-.27	.48	.12	.28
Years Institutionalized	.06	.11	.22	-.12	.11	.10	.55*	.01	-.04	-.10
Parent Contacts(Yr.)	.20	.24	-.15	.18	.10	.37	-.10	-.13	.18	.04
N of valid cases	26	26	25	23	15	15	16	16	16	14

All demographic variables were correlated with acquisition data in an attempt to find predictors of success among potential profoundly retarded clients and to gain clues to explain the wide range of acquisition scores. Table IX. presents these correlations. A word of caution is due before proceeding with this analysis. Studies involving multiple comparisons such as this may be misleading because of the high probability that some relationships strong enough for statistical significance will be found due to the influence of chance alone. This "probability

pyramiding" effect should be born in mind in interpreting these results.

Chronological age bears the strongest relationship with speed of acquisition. There appears to be a definite trend for older clients to take more time in learning the project tasks. Intuitively, speed of learning the project tasks would seem to be most closely related to mental age. The expected relationship would be negative since clients with high mental age would be expected to take fewer minutes to learn. Of the 10 correlations in Table IX between mental age and speed of learning, 8 are in the expected (negative) direction but none reaches the magnitude required for significance. To offset the influence of minor fluctuations between tasks in acquisition time, we combined each client's scores on the first four tasks. This combined score was then correlated with the demographic variables. Chronological age again showed a strong relationship with older clients learning slower. This new procedure produced a marked relationship between age at institutionalization and speed of learning. Clients who were placed in institutions at a younger age tended to learn much faster than those who were older when committed. This was true for both measures of acquisition (total time required to learn and number of repetitions).

Three tasks were selected as production tasks. After clients reached acceptable levels of accuracy in performance, they were placed in group situations under less supervision to work for increasingly longer periods at the same task. The main effort in this phase of the project was to increase production rate. In order to achieve this it was necessary for clients to sustain effort over a long period of time and to move rapidly. Only nine of the 26 clients progressed far enough for inclusion in production activities. No data on performance rate with comparable tasks was available for other groups. An attempt will be made to collect this data at a community sheltered workshop for future comparisons with this group. Even with this select group, we again recorded a wide range of production rates. On the three tasks, the best worker produced from five to seven times the amount produced by the slowest worker. Table X. compares demo-

graphic variables with the three production tasks.

Table X. Pearson product-moment correlations of demographic variables with rate of production. Statistical probability that results are attributable to chance five or fewer times in 100 trials is indicated by asterik(*).

Demographic Variables	Production Tasks		
Chronological Age	-.37	-.67	-.75
Mental Age	.66*	.92*	.95*
Social Age	-.64	-.84	-.65
Age Institutionalized	.04	.31	.03
Years Institutionalized	-.26	-.67	-.40
Parent Contacts	.09	-.57	-.51
N of Valid Cases	9	5	5

All demographic variables except age of institutionalization produced high correlations with production rate.Mental Age was significantly correlated with rate of production for all three production tasks. Clients with a higher Mental Age produced more.

Previous project reports have speculated on the relationship between acquisition and production. We know that profoundly retarded people learn more slowly than other populations, but if it could be shown that: I. the profoundly retarded can be taught to perform useful work and 2. once they learn to perform a task,the rate of performance is independent of the rate of learning, this would have profound implications for the vocational potential of this population. Although the number of clients reaching production (9) is low at this time, we constructed a correlation to associate acquisition and production data.

Table XI. Frequency distribution of correlations of all acquisition data with all production data.

	Production I	Production II	Production III	Total
+.90 +.99				
+.80 +.89				
+.70 +.79				
+.69 +.69				
+.50 +.59		1		1
+.40 +.49	1		1	2
+.30 +.39	1	1		2
+.20 +.29	2			2
+.10 +.19	1	4		5
.00 +.09	4	2	1	7
-.10 -.01	2	1	1	4
-.20 -.11	2		2	4
-.30 -.21	5	2	2	9
-.40 -.31	4	1	1	6
-.50 -.41	3	1	4	8
-.60 -.51	2	5	7	14
-.70 -.61	1	5	3	9
-.80 -.71	2	6	7	15
-.90 -.81				
-1.00 -.91		1		
N of valid Cases	9	5	5	

Table XI. shows a definite trend for acquisition data to be inversely proportional to production data. While 19 correlations are in a positive direction, 69 are negative. 43% of the correlations are below -.50. If this pattern presists after large numbers of clients have been placed in production, it will tend to defeat the idea that little or no relationship exists between ability to learn and ability to perform once the task is learned. At least with this small group of clients, most of those who learned rapidly during acquisition (low acquisition time and repetitions to criterion) also produced at a higher rate (higher rate per hour).

V. INTERMEDIATE ACTIVITIES AND LONG RANGE GOALS

In the nine months the project has been running, considerable progress has been made in program structure and content, in the delivery of services to clients, and in complying with orginally set goals. However, in no way can the project be considered as having "matured" or peaked. New goals are being set and extant goals are being reviewed. In the context of the program is being reassessed and, where necessary, reformulated.

Among the new activities planned for the upcoming year is the exploration of agriculture as a modality for training cooperative group-work behaviors, providing a tangible end-product with personal relevance for the worker, and developing work-related perceptual and psycho-motor skills. Beginning in July, a garden will be provided behind the school area, and several staff members and selected clients will excavate, plant, maintain, and harvest the garden. The clients will perform the majority of the work, and the staff will demonstrate the proper work techniques, train the clients, and supervise and document their performances. It has been shown in other projects that agricultural training and vocational placement is feasible and practical for the severely and moderately retarded. The agricultural attempt this summer will be pursued to determine its practicability for the profoundly retarded.

Other goals and activities planned for the new year are:

1.) A Full-Day Program in which selected clients participate in six hours of training daily will be implemented. This is an important step in their preparation for sheltered employment. Many clients have demonstrated the ability to be trained for various work tasks, but the learning of stamina and endurance, of maintaining quality and quantity when tired, and of remaining occupied in a situational training modality. This will be provided through the extended training period.

2.) An evaluation tool based on the current curriculum content and a revised Vocational Behavior Observation Form will be constructed. This evaluation tool would provide a more reliable structure for admitting clients to the program and facilitate concurrent evaluation to determine client readiness for community placement. During and after this tool's development, careful attention will be paid to its validity and the need for revision in order to determine its value in improving our delivery of services.

3.) Additional benchwork tasks will be introduced to the program. These are needed to extend the range of training in order to provide the clients with a comprehensive set of perceptual, psychomotor, and social-vocational skills. Tasks from the Sheltered Occupational Shop will be sought as well as other quasi-subcontract work from local industries.

4.) Sandra Grafton of Project More in Nashville, Tennessee will be requested to present a one-day In-Service Training Workshop in Task Analysis and the use of Project More training texts for Activities of Daily Living and social skills. This training will be consistent with our increasing attention to these skill areas as necessary concomitants of prevocational training.

5.) Improved communications with DDSA and Office of Developmental Disabilities Staff will be pursued. This may include personal visits, conducting a demonstration of the training program by the Cottage Training Workshop Staff, and supplying copies of the in-house-training manual which is in development. Improving communications may supply this project with valuable programmatic feedvack and indicate the project's unique needs to funding personnel.

6.) An in-house demonstration workshop will be given to ADC staff to underline the services being rendered and the abilities of the clients being served. This demonstration will be for administrative, professional support and direct-care staff. Since this project has facilited the development and growth of the individuals participating in it, it would be appropriate to demonstrate to ADC

staff these possibilities for growth, how they were facilitated, and the implications for the futures of the clients.

7.) The training manual in development includes the tasks and the methods of training, documentation of task learning and social-vocational behavior, the program structure, and evaluation procedures. Although this manual is designed for in-house utilization, it will also present an overview of the project structure and content and, thence, the context in which client growth is being stimulated.

In addition to these goals and activities, the staff of the Cottage Training Workshop will provide more training for the clients in Activities of Daily Living and social - vocational skills in their areas of need. This will coincide with better documentation of training in these areas, and the evaluation and specification of each individual's needs. As training continues, these needs will be reevaluated and new training implemented. Thus, the entire person will be served in the effort to prepare him/her for vocational and/or community placement as the project becomes more responsive to individual needs.